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10/673,634	09/30/2003	Laurent Olivier	09286.0001-00000	1127

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EXAMINER
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PRINCE, FRED G

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

10/673,634

Applicant(s)

OLIVIER, LAURENT

Examiner

Fred Prince

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 30-172 is/are pending in the application.
- 4a) Of the above claim(s) 56-149 and 173-179 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-49, 52, 55, 150-152, 164-166 and 171 is/are rejected.
- 7) ☒ Claim(s) 50, 51, 53, 54, 153-163, 167-170 and 172 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0105, 0105
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

RA

**DETAILED ACTION**

***Election/Restriction***

1. Applicant's election with traverse of Group I in the reply filed on January 3, 2005 is acknowledged. The traversal is on the ground(s) that the examiner has not shown burden, many of the inventions are classified in the same class, and two are classified in the same subclass. These arguments are not found persuasive because the examiner has shown that there are twelve inventions claimed in the instant invention and clearly, examination of twelve inventions in a single application is a burden on the examiner. With regard to Applicant's argument that half of the inventions are classified in class 210, the argument is not persuasive as class 210 contains well over 100,000 patents including foreign patents. Applicant asserts that Groups I, II, and X, should be examined together because they require denitrification. It is noted that not all of the independent claims within Groups II and X require denitrification, nor do they all require the combination of nitrification and denitrification called for in the claims of Group I. Hence, the assertion is not persuasive. Finally, while two inventions may require a search in the same subclass, it is submitted that as the two inventions do not share the same patentable features, considerations for one invention are not required for the other invention.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 56-149 and 173-179 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim.

***Claim Objections***

3. Claim 172 is objected to because of the following informalities: It appears that --providing-- should be inserted prior to "the remaining" in line 1. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 52 recites the limitation "the sulfate concentrations" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 30-31 and 150-151 are rejected under 35 U.S.C. 102(e) as being anticipated by Takada (US Pat No 6,730,226).

Takada teaches flowing water from a contained environment (col. 4, lines 15-18) to a first apparatus (1e) having a first media (Figs. 1-3) for supporting aerobic bacteria to reduce oxygen concentration (col. 1, lines 42-44), flowing the water from the first apparatus to the second apparatus (1e) containing anaerobic bacteria to reduce nitrate levels (col. 1, lines 45-47), and flowing the water back to the environment (col. 2, lines 48-49).

9. Claims are 30-32, 150, and 166 are rejected under 35 U.S.C. 102(b) as being anticipated by Hofmann (US Pat No 4,620,929).

Hofmann teaches flowing water from a contained environment (aquarium) to a first apparatus (8) having a first media (18) for supporting aerobic bacteria to reduce oxygen concentration to less than 2 ppm (col. 1, lines 65-68), flowing the water from the first apparatus to the second apparatus (11) containing anaerobic bacteria to reduce nitrate levels (col. 1, lines 55-58), and flowing the water back to the environment via gravity (col. 2, lines 10-12).

10. Claims 30-31, 34-37, 41, 43-45, 49, 55, 150-152, and 164 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimmel (US Pat No 5,670,046).

Kimmel teaches flowing water from a contained environment (col. 4, lines 18-22) to a first apparatus (20) having a first media (24) for supporting aerobic bacteria to reduce oxygen concentration (col. 1, lines 66-67; col. 2, line 1) and filtering water the

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water (26; col. 5, lines 15-17), flowing the water from the first apparatus to the second apparatus (30) made of opaque material (col. 5, lines 5-7 and 27-30) containing anaerobic bacteria on crushed lava (34), a substance containing sulfur, to reduce nitrate levels (col. 2, lines 10-12) to levels between the recited range (col. 7, lines 20-40), flowing the water to a positively aerated third apparatus (40; col. 5, lines 37-39) containing calcium (42) and activated carbon (col. 4, lines 58-59 together with col. 5, lines 19-22) and another apparatus containing calcium (col. 6, lines 6-11), degassing the flow of water (49), and flowing the water back to the environment (47) at a pH within the recited range (col. 7, line 37).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 33, 38-40, 42, 46-48, 165, and 171 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmel.

Kimmel is described above. Kimmel does not disclose the recited oxygen level, bacteria, or temperature.

It is submitted that it is known in the art to use the recited aerobic and anaerobic bacteria alone, or in combination, in order to efficiently and effectively degrade and remove nitrogen from water. Accordingly, it would have been readily obvious for the

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skilled artisan to use the recited aerobic and anaerobic bacteria alone, or in combination, in order to efficiently and effectively degrade and remove nitrogen from water.

Regarding the temperature and oxygen level in the second apparatus, it is submitted that as it is known that anaerobic bacteria thrive in environments having a low oxygen level and it is known that nitrates can be effectively degraded at the recited temperatures, the use of the recited temperature and oxygen level is a matter of process design, insufficient to patentably distinguish the instant invention over the prior art.

Kimmel does not disclose using a protein skimmer which raises pH and mixes oxygen via an eductor.

It is submitted that it is conventional in the art to utilize a protein skimmer in order to remove organic molecules from water emanating from an environment for aquatic life. Accordingly, it would have been obvious for the skilled artisan to have modified the process of Kimmel by providing a protein skimmer to remove organic molecules from water emanating from an environment for aquatic life.

Regarding mixing oxygen to the water via an eductor, it is submitted that it is well within the purview of the skilled artisan to add oxygen to water via an eductor in order to cause the organic molecules to attach to oxygen bubbles and rise to the surface as a foam and be easily removed from the water.

Kimmel does not disclose monitoring the properties of the water in the environment and controlling the process based on the monitoring.

It is submitted that it is conventional in the art to monitor the properties of water in the environment and control the process based on the monitoring in order to ensure that there are no environment upsets resulting in the loss of aquatic life.

Accordingly, it would have been obvious for the skilled artisan to have modified the process of Kimmel by monitoring the properties of the water in the environment and controlling the process based on the monitoring in order to ensure that there are no environment upsets resulting in the loss of aquatic life.

***Allowable Subject Matter***

13. Claims 50-51, 53-54, 153-163, 167-170, and 171 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claim 52 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

Per claim 50, while claim 49 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or render obvious providing activated carbon immersed in water with dry activated carbon in the degassing chamber.



Per claim 51, while claim 30 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest combining the invention with an oxytower having the recited positioning and operational elements.

Per claims 52-54, while claim 34 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or render obvious reducing sulfate concentrations after the water leaves the second chamber prior to flowing back to the contained environment.

Per claim 153, while claim 150 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest providing the second stream of water to the biofilter after the water exits the denitrification system.

Per claims 154-163, 169, and 170, while claim 150 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or render obvious providing the streams to oxytower, wherein the streams are combined together before being returned to the environment.

Per claims 167-168, the prior art fail to teach or fairly suggest sending the first and second streams to a protein skimmer and combining the streams prior to returning the streams to the environment.

Per claim 172, while claim 171 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest providing the portion of the stream to an oxytower with the protein skimmer and oxytower being arranged in parallel.

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**Conclusion**

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Fred Prince  
Primary Examiner  
Art Unit 1724  
3/2/05

fgp